

Royal Holloway, University of London
Programme specification for an undergraduate award
MSci Environmental Geoscience (F631)

Section 1 – Introduction to your programme

This programme specification is a formal document, which provides a summary of the main features of your programme and the learning outcomes that you might reasonably be expected to achieve and demonstrate if you take full advantage of the learning opportunities that are provided. Further information is contained in the College prospectus, and in various handbooks, all of which you will be able to access online. Alternatively, further information on the College's academic regulations and policies can be found [here](#). Further information on the College's Admissions Policy can be found [here](#).

Your degree programme in MSci Environmental Geoscience is delivered in four stages, each of which normally comprises one year of full-time study, during which you must follow courses to the value of 120 credits. Although full-time attendance is the normal mode of study, in certain circumstances it may be possible to become study part-time and each stage of the programme over two years (60 credits per year). In this case there are no specific requirements in terms of the order in which the respective courses are taken. Please note, however, that the Year in Industry and Year Abroad programmes cannot be taken on a part time basis.

The MSci Environmental Geoscience is characterised by the provision of a broad base in skills and knowledge in stages one and two followed by opportunities for specialisation in stages three and four. The programme also has a strong compulsory spine of fieldwork. Training in data collection, data analysis and presentation of reports is provided in core courses and independent project work is included in the final stage of the degree programme. Stage one courses follow a common core of four units which provide a broadly-based introduction to the subject, providing you with basic knowledge and understanding, discipline-specific skills, and transferable skills. Stage two contains eight core Earth Sciences courses; these are integrated courses in substantial areas of the discipline which form a bridge between the introductions provided in stage one and the research-led specialist options in stages three and four. These specialist courses are closely informed by the active research of staff and the needs of industry, particularly in the general areas of: Ancient and Modern Earth Systems (modern atmospheres, surface processes, palaeobiology, ancient Earth systems), Tectonics and Basins (sedimentology, mountain evolution, uplift, and erosion, numerical modelling, seismic interpretation, lithospheric and asthenospheric processes) and Geochemistry (palaeoceanography, crust-mantle evolution, plumes and ridges, volcanic arcs). Stage four of the programme provides you with courses that encourage you to apply your previous knowledge, understanding and practical skills to a range of research level questions across a wide range of geological environments. In addition you get to nurture your chosen specialism and improve their research skills through undertaking an independent research project worth 50% of the year.

While Royal Holloway keeps all the information made available under review, programmes and the availability of individual course units, especially optional course units are necessarily subject to change at any time, and you are therefore advised to seek confirmation of any factors which might affect your decision to follow a specific programme. In turn, Royal Holloway will inform you as soon as is practicable of any significant changes which might affect your studies.

The following is brief description for some of the most important terminology for understanding the content of this document:

Degree programme – Also referred to as ‘degree course’ or simply ‘course’, these terms refer to the qualification you will be awarded upon successful completion of your studies.

Course unit – Also referred to as ‘module’, this refers to the individual units you will study each year to complete your degree programme. Undergraduate degrees at Royal Holloway comprise a combination of 15 and 30 credit course units to the value of 120 credits per year. On some degree programmes a certain number of optional course units must be passed for a particular degree title.

Section 2 – Programme details			
Date of specification update	August 2018	Location of study	F631
Programme award and title	MSci Environmental Geoscience	Level of study	Undergraduate
Programme code	1313	UCAS code	F631
Year of entry	2019/20		
Awarding body	Royal Holloway, University of London		
Department or school	Earth Sciences	Other departments or schools involved in teaching the programme	N/A
Mode(s) of attendance	Full-time	Duration of the programme	Four years
Accrediting Professional, Statutory or Regulatory Body requirement(s)	Geological Society of London. In order to satisfy the accreditation requirements of the Geological Society of London you will need to meet certain conditions. In the case of the MSci Environmental Geoscience, this means that you must successfully complete an Independent Research Project.		
Link to Coursefinder for further information:	https://www.royalholloway.ac.uk/studying-here/	For queries on admissions:	study@royalholloway.ac.uk .

Section 3 – Degree programme structure										
3.1 Mandatory course unit information										
The following table summarises the mandatory modules which students must take in each year of study										
Year	Course code	Course title	Contact hours*	Self-study hours	Written exams	Practical assessment	Coursework	Credits**	FHEQ level	Course status (see below)
1	GL1100	Global Tectonics	55	95	80%	0	20%	15	4	MC
1	GL1200	Introductory Sedimentology	48	102	70%	0	30%	15	4	MC
1	GL1300	Environmental Issues with Maths	53	97	70%	0	30%	15	4	MC
1	GL1460	Igneous and Metamorphic Geology	60	90	60%	30%	10%	15	4	MC
1	GL1500	Physics and Chemistry of Earth	60	90	70%	0	30%	15	4	MC
1	GL1600	Earth Structures	62	88	60%	0	30%	15	4	MC
1	GL1800	Introductory Palaeontology	60	90	60%	0	40%	15	4	MC
1	GL1900	Scientific and Geological Field Skills	122	28	0	0	100%	15	4	MC
2	GL2200	Stratigraphy and History of Life	60	90	60%	0	40%	15	5	MC
2	GL2210	Regional Geology	60	90	60%	0	40%	15	5	MC
2	GL2320	Geohazards	48	102	60%	0	40%	15	5	MC
2	GL2410	Geochemistry	50	100	50%	30%	20%	15	5	MC
2	GL2930	Geological Field Skills for Environmental Students	110	40	0	20%	80%	15	5	MNC
3	GL3001	Advanced Concepts and Techniques in Geology	183	117	50%	15%	35%	30	6	MC
3	GL3300	Aqueous Geology	30	120	60%	30%	10%	15	6	MC

3	GL3321	Environmental Geology Project	13	227	0	0	100%	30	6	MNC
3	GL3940	Methods of Environmental Investigation	78	72	0	0	100%	15	6	MC
4	GL4322	Independent Environmental Geoscience Project	132	528	0	20%	80%	60	7	MNC
4	GL4040	Evolution of the Modern Earth	180	90	60%	40%	0	15	7	MC
4	GL4930	Field and Research Skills	136	14	25%	0	75%	15	7	MC

This table sets out the most important information for the mandatory courses on your degree programme. These courses are central to achieving your learning outcomes, so they are compulsory, and all students on your degree programme will be required to take them. You will be automatically registered for these courses each year. Mandatory courses fall into two categories; 'condonable' or 'non-condonable'.

In the case of mandatory 'non-condonable' (MNC) courses, you must pass the course before you can proceed to the next year of your programme, or to successfully graduate with a particular degree title. In the case of mandatory 'condonable' (MC) courses, these must be taken but you can still progress or graduate even if you do not pass them. Please note that although Royal Holloway will keep changes to a minimum, changes to your degree programme may be made where reasonable and necessary due to unexpected events. For example; where requirements of relevant Professional, Statutory or Regulatory Bodies have changed and programme requirements must change accordingly, or where changes are deemed necessary on the basis of student feedback and/or the advice of external advisors, to enhance academic provision.

*Contact hours come in various different forms, and may take the form of time spent with a member of staff in a lecture or seminar with other students. Contact hours may also be laboratory or, studio-based sessions, project supervision with a member of staff, or discussion through a virtual learning environment (VLE). These contact hours may be with a lecturer or teaching assistant, but they may also be with a technician, or specialist support staff.

**The way in which each course on your degree programme is assessed will also vary, however, the assessments listed above are all 'summative', which means you will receive a mark for it which will count towards your overall mark for the course, and potentially your degree classification, depending on your year of study. On successful completion of the course you will gain the credits listed. 'Coursework' might typically include a written assignment, like an essay. Coursework might also include a report, dissertation or portfolio. 'Practical assessments' might include an oral assessment or presentation, or a demonstration of practical skills required for the particular course.

3.2 Optional course units

In addition to mandatory course units, there will be a number of optional course units available during the course of your degree. The following table lists a selection of optional course units that are likely to be available. However, not all may be available every year. Although Royal Holloway will keep changes to a minimum, new options may be offered or existing ones may be withdrawn. For example; where reasonable and necessary due to unexpected events, where requirements of relevant Professional, Statutory or Regulatory Bodies (PSRBs) have changed and programme requirements must change accordingly, or where changes are deemed necessary on the basis of student feedback and/or the advice of External Advisors, to enhance academic provision. There may be additional requirements around option selection, so it is important that this specification is read alongside your department's Student Handbook, which you can access via their [webpage](#).

Year 1	Year 2	Year 3	Year 4
	GL2230 Sedimentary Basin Analysis (15 credits)	GL3200 Marine Geology (15 credits)	GL4300 Water Quality
	GL2400 Igneous and Metamorphic Geology (15 credits)	GL3210 Advanced Topics in Sedimentology (15 credits)	GL4310 Air Pollution
	GL2500 Applied Geophysics (15 credits)	GL3340 GIS and Remote Sensing (15 credits)	GL4380 Environmental Inorganic Analysis
	GL2520 Computational Earth Sciences (15 credits)	GL3460 Volcanology (15 credits)	
	GL2600 Structural Analysis and Remote Sensing (15 credits)	GL3650 Modern Climate Change	
		GL3750 Mineral Resources (15 credits)	

3.3 Optional course unit requirements

You must choose options to the value of 45 credits in Stage 2, 30 credits in Stage 3, and 30 credits in Stage 4. During Stage 3, you may, with the permission of the Director of UG Teaching, replace one option with another 15 credit FHEQ level 6 course in Geography.

Section 4 - Progressing through each year of your degree programme

For further information on the progression and award requirements for your degree, please refer to Royal Holloway's [Academic Regulations](#).

Part-time students must take courses to the value of 60 credits each year – the split of courses to be agreed with the programme director.

Section 5 – Educational aims of the programme

- to provide a sound and extensive basis for the study of the Geological Sciences relating to the natural environment, meeting the requirements for programme accreditation by the Geological Society and the general requirements of the subject benchmarking statement;
- to provide you with knowledge of the science, and equip them with discipline-specific and transferable skills;
- to provide you with core knowledge and a range of key skills;
- to offer a range of specialist courses and research projects which allow you to develop expertise and research interests in your chosen field;
- to produce graduates who are equipped with knowledge and skills appropriate for careers in the Earth Sciences and other disciplines;
- to equip you to carry out independent advanced studies in the Earth Sciences.

Section 6 - Programme learning outcomes

In general terms, the programmes provide opportunities for students to develop and demonstrate the following learning outcomes. (*Categories – Knowledge and understanding (K), Skills and other attributes (S), and Transferable skills (*)*)

<ol style="list-style-type: none"> 1. The scientific, interdisciplinary study of the physical, chemical and biological processes operating on and within the Earth (K); 2. The interaction of these processes in the consideration of the Earth as a dynamic system through time, (crust-mantle processes, surface processes, biosphere, atmosphere and hydrosphere) (K); 3. The structure and composition of the Earth (K); 4. The study of geological materials (minerals, rocks, fluids) (K); 5. The use of geological maps to represent three-dimensional spatial variations and their interpretation in a temporal framework (K); 6. The techniques of investigation in the geological sciences (geophysical, geochemical, remote sensing, geological data collection and analysis) (K); 7. The evolution of life and changing environments through the study of palaeobiology, palaeoecology, palaeoenvironmental and sedimentological analysis (K); 8. Geodynamic processes at the scale of local and global tectonics (K); 9. Stratigraphic principles and techniques (litho-, bio-, chrono- and sequence stratigraphy) (K); 10. The application of the Earth Sciences to resource exploitation (hydrocarbons, minerals, water), civil and environmental engineering (construction, waste disposal) and environmental hazards (earthquakes, volcanic eruptions, floods, landslides) (K); 11. The social and political role of the Earth Sciences in the exploitation and conservation of geological resources (K); 12. An area of specialism through the medium of independent research (K); 13. The range of geological problems debated in the literature and the application of multidisciplinary approaches in tackling them (K); 14. The mechanisms and feedbacks observed in a range of geological and environmental systems (K); 15. Recognise and apply different theories, concepts and principles (S); 16. Apply appropriate numerical, statistical and instrumental techniques to the analysis of geological data (S); 	<ol style="list-style-type: none"> 19. The role of periodic, cyclic and irreversible processes that have led to the current state of the Earth and its environment (K); 20. Develop a strategy for tackling a scientific problem (S); 21. Collect, document and analyse different types of data using appropriate techniques and methodologies (S); 22. Synthesise data and information, and recognise or formulate hypotheses for the interpretation of this information (S); 23. Recognise the importance of applying professional standards in scientific work (S); 24. The description and interpretation of rocks and minerals in hand specimen and through the use of a petrological microscope (S); 25. The analysis and interpretation in time and space of structural and stratigraphic data presented as geological maps (S); 26. Reduction and interpretation of geophysical and other remotely sensed data (S); 27. The design and analysis of experiments in a safe and effective manner (S); 28. The recording of relevant geological data in spatial context (S); 29. The collection of rocks, minerals, fossils and environmental media in a safe, efficient and environmentally sensitive manner (S); 30. The attainment of certain standards of numeracy (S*); 31. The ability to use appropriate computer technology and communication using the internet (S*); 32. The use of libraries and the retrieval of information from diverse sources (S*); 33. The ability to assemble information, analyze and synthesize results and present them in a variety of reporting formats including short written reports, longer dissertations and presentation as posters and oral presentations (S*); 34. Working in a team, setting goals by discussion, and sharing information and ideas to develop a collective outcome to a problem (S*); 35. The use of multiple mediums to communicate science to a wide range of audiences (S*); 36. The use of appropriate techniques of data analysis for an independent research project (S*); 37. Safe and effective practice in an analytical laboratory (S*); 38. The planning and execution of field work in a safe and considerate way, having due regard for all regulations covering health, safety and access rights; carrying out a hazard assessment (S*);
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<p>17. Recognise applicable theories or formulate new hypotheses for the interpretation of geological information (S);</p> <p>18. Carry out independent, innovative research into a topic and present the results to a professional standard (S);</p>	<p>39. Communication of main aims, outcomes and impact of research to a variety of audiences; peer, research proposal review committee, academic staff (S*).</p>
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Section 7 - Teaching, learning and assessment

The learning outcomes are embedded within the mandatory and optional courses available to you. A progression of knowledge and understanding is achieved by starting with a basic grounding, which is subsequently reinforced and developed through application to specialist topics. In stages one and two, different aspects are taught as 30 or 15 credit courses, these courses are linked through tutorial exercises and most importantly through the mandatory field and research skills programme where the application of theory and practical skills learnt in class are used to solve geological and environmental problems. In stage three, specialist topics utilise this broad geological grounding to build more in depth knowledge and understanding of certain geological sub-disciplines. Again integration of all aspects of the stage 3 taught programme occurs through independent projects and the year 3 taught field trip. Practical classes comprise 60% of the timetabled study time, reflecting the emphasis on learning through studying maps, rocks and class work exercises. Lectures are used to introduce material and provide a context for private study. Tutorials supplement and reinforce knowledge and understanding. An appropriate field programme provides opportunities for you to apply concepts developed in the classroom and lecture theatre and is considered to be a fundamental aspect of the teaching programme. Field and laboratory project work carried out as individuals or in teams represents an opportunity for you to develop in-depth knowledge of specialist areas. Transferable, laboratory and field skills are identified within the learning outcomes of course units and summarized in a skills progression chart in the undergraduate handbook. Stage 4 is made up of equal parts taught courses and research project. You can follow your desired specialism through your independent research project. This is supplemented by taught courses which provide the advanced knowledge, critical thinking and research skills required to complete a large research project to a high standard.

Assessment of skills, knowledge and understanding is by means of formal examinations, coursework practical exercises, literature research reports, fieldwork and laboratory exercises and reports, oral presentations and independent dissertations. Independent research projects in stage three provide opportunities to develop and integrate a wide range of discipline-specific and transferable skills and you are encouraged to regard these as an important forum for demonstrating their abilities. Full details of the assessments for individual courses can be obtained from the [Department](#).

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Section 8 – Additional costs	
The department will provide you with a set of essential field work equipment, for example a hard hat, compass in your first year.	
You will be asked for a £250 per year contribution towards field trip costs.	
These estimated costs relate to studying this particular degree programme at Royal Holloway. General costs such as accommodation, food, books and other learning materials and printing etc., have not been included, but further information is available on our website.	

Section 9 – Indicators of quality and standards	
QAA Framework for Higher Education Qualifications (FHEQ) Level	4-7
Your programme is designed in accordance with the FHEQ to ensure your qualification is awarded on the basis of nationally established standards of achievement, for both outcomes and attainment. The qualification descriptors within the FHEQ set out the generic outcomes and attributes expected for the award of individual qualifications. The qualification descriptors contained in the FHEQ exemplify the outcomes and attributes expected of learning that results in the award of higher education qualifications. These outcomes represent the integration of various learning experiences resulting from designated and coherent programmes of study.	
QAA Subject benchmark statement(s)	http://www.qaa.ac.uk/quality-code/subject-benchmark-statements
Subject benchmark statements provide a means for the academic community to describe the nature and characteristics of programmes in a specific subject or subject area. They also represent general expectations about standards for the award of qualifications at a given level in terms of the attributes and capabilities that those possessing qualifications should have demonstrated.	

Section 10 – Further information

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate when taking full advantage of the learning opportunities that are available. More detailed information on course units, including teaching and learning methods, and methods of assessment, can be found via the online [Course Catalogue](#). The accuracy of the information contained in this document is reviewed regularly by the university, and may also be checked routinely by external agencies, such as the Quality Assurance Agency (QAA).

Your programme will be reviewed regularly, both by the university as part of its cyclical quality enhancement processes, and/or by your department or school, who may wish to make improvements to the curriculum, or in response to resource planning. As such, your programme may be revised during the course of your study at Royal Holloway. However, your department or school will take reasonable steps to consult with students via appropriate channels when considering changes. All continuing students will be routinely informed of any significant changes.

Section 11 – Intermediate exit awards (where available)

You may be eligible for an intermediate exit award if you complete part of the programme as detailed in this document. Any additional criteria (e.g. mandatory course units, credit requirements) for intermediate awards is outlined in the sections below.

Award	Criteria	Awarding body
Diploma in Higher Education (DipHE)	240 credits (two stages each comprising 120 credits, the second stage including at least 90 credits at or above FHEQ Level 5)	Royal Holloway and Bedford New College
Certificate in Higher Education (CertHE)	60 credits (one stage comprising 120 credits, of which at least 90 credits are at or above FHEQ Level 4)	Royal Holloway and Bedford New College

Section 12 - Associated award(s)	
MSci Geoscience (F601)	MSci Environmental Geoscience (F631)
MSci Geoscience with a Year of International Study (F602)	MSci Environmental Geoscience with a Year of International Study (FP42)
MSci Geoscience with a Year in Industry (F642)	MSci Environmental Geoscience with a Year in Industry (F644)